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COMMUNICATIONS IN BEHAVIORAL BIOLOGY, VOL. 3, NO. 1-6, JANUARY-JUNE, 1969

CBB ABSTRACTS- 01690001-08690038

01690001 MULLINS RF, LEVINE S (DEPARTMENT OF PSYCHIATRY, STANFORD UNIVERSITY SCHOOL OF MEDICINE, STANFORD, CALIFORNIA 94305)
DIFFERENTIAL SENSITIZATION OF PENILE TISSUE BY SEXUAL HORMONES IN NEWBORN RATS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE INJECTION OF TESTOSTERONE INTO CASTRATED MALE RATS WITHIN 96 HOURS AFTER BIRTH RESULTED IN INCREASED SENSITIVITY OF THE CORNIFIED PAPILLAE ON THE SURFACE OF THE PENIS TO TESTOSTERONE INJECTED IN ADULTHOOD. ESTROGEN GIVEN IN INFANCY DECREASED THE SENSITIVITY OF THESE STRUCTURES IN COMPARISON TO CONTROLS. THIS DIFFERENTIAL SENSITIZATION IS ANALOGOUS TO PROCESSES THAT PREVIOUS WORK HAS SUGGESTED MIGHT OCCUR DURING INFANCY IN THE BRAIN.

INDEX TERMS -- RATS, CASTRATION, TESTOSTERONE, ESTROGEN, NEWBORN, PENIS, SENSITIZATION

01690002 BALL GC (ROCKEFELLER UNIVERSITY, NEW YORK)
SEPARATION OF ELECTRICAL SELF-STIMULATION AND ELECTRICALLY ELICITED EATING IN THE HYPOTHALAMUS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

AN ATTEMPT IS MADE TO ANSWER THE PARADOX OF WHY HYPOTHALAMIC STIMULATION, PRODUCING RESPONSES IN THE RAT ASSOCIATED WITH HUNGER, APPEARS TO BE REWARDING. THE PARADOX IS RESOLVED BY SHOWING THAT THE ABOVE STATEMENT IS, IN FACT, FALSE. THE EXPERIMENTS DEMONSTRATE THAT RATS PREFER A TYPE OF STIMULATION WHICH DOES NOT PRODUCE EATING RESPONSES OVER ONE THAT DOES. THE DATA ARE INCOMPATIBLE WITH AN INTERPRETATION OF THE REWARD BEING ASSOCIATED WITH THE CONSUMMATORY RESPONSE. RATHER, THE DATA SUGGEST THAT THE REINFORCEMENT IS MORE CLOSELY TIED TO THE ABSENCE OF HUNGER, AND THAT DURING CONTINUOUS STIMULATION THE REWARDING PROPERTIES DECAY OUT, WHILE A PERIOD OF TEMPORAL SUMMATION SEEMS NECESSARY BEFORE THE HUNGER APPEARS. IN SOME ANIMALS, THERE IS ALSO A RESIDUAL HUNGER THAT PERSISTS AFTER A LONG TRAIN OF STIMULATION.

INDEX TERMS -- RATS, HYPOTHALAMUS, SELF STIMULATION, HUNGER, EATING

01690003 MCBRIDE RL, KLEMM WR (DEPARTMENT OF BIOLOGY, INSTITUTE OF LIFE SCIENCE, TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS 77843)
MECHANISMS OF THE IMMOBILITY REFLEX 'ANIMAL HYPNOSIS'--I--INFLUENCES OF REPETITION OF INDUCTION, RESTRICTION OF AUDITORY-VISUAL INPUT, AND DESTRUCTION OF BRAIN AREAS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

IN THIS INVESTIGATION OF THE IMMOBILITY REFLEX, REPEATED INDUCTION IN FROGS REVEALED AN APERIODIC OSCILLATION OF LONG DURATIONS OF IMMOBILITY. THE DEGREE OF OSCILLATION VARIED WITH INTER-TRIAL INTERVAL, IN THAT LONG INTERVALS (5 MINUTES OR LONGER) CAUSED MORE UNIFORM AND SHORTER DURATIONS.

RESTRICTED SENSORY INPUT EFFECTS ON DURATION WERE TESTED BY ABLATING EYES AND/OR EARS IN FROGS. SUCH SURGERY PRODUCED LITTLE SIGNIFICANT EFFECT. THIS AND OTHER EVIDENCE LED TO THE SUGGESTION THAT 'TRIGGERING' STIMULI FOR THE IMMOBILITY REFLEX INVOLVE PROPRIOCEPTIVE OR TACTILE ELEMENTS.

TO DETERMINE WHETHER THE REFLEX IS REGULATED BY DIFFUSE SYSTEMS OR BY A RESTRICTED 'CENTER', BRAINS OF FROGS WERE COMPLETELY TRANSECTED AT VARIOUS LEVELS. THE REFLEX PERSISTED IN FROGS WITH CUTS AS FAR POSTERIOR AS THE 8TH CRANIAL NERVE ORIGIN, SUGGESTING A MEDULLARY LOCUS OF A DIRECT, DESCENDING MOTOR INHIBITORY CENTER.

CONSISTENT WITH THIS THEORY, CERTAIN DISCRETE UNILATERAL LESIONS IN THE BRAIN STEM AND CEREBELLUM OF RABBITS HAD MARKED EFFECTS ON IMMOBILITY DURATIONS. SOME OF THESE NUCLEI ARE THE SAME ONES WHICH ARE APPARENTLY INVOLVED IN REGULATING BOTH SLOW-WAVE AND PARADOXICAL SLEEP.

INDEX TERMS -- FROGS, RABBITS, IMMOBILITY, MEDULLA OBLONGATA, CEREBELLUM, MODALITY, BRAIN STEM

01690004 KLEMM WR (DEPARTMENT OF BIOLOGY, INSTITUTE OF LIFE SCIENCE, TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS 77843)
MECHANISMS OF THE IMMOBILITY REFLEX 'ANIMAL HYPNOSIS'--II--EEG AND MULTIPLE UNIT CORRELATES IN THE BRAIN STEM.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

ELECTROGRAPHIC RECORDING FROM OVER 500 SAMPLE SITES IN THE BRAIN STEM AND CEREBELLUM OF 37 RABBITS CONSISTENTLY REVEALED A SUSTAINED HIGHER LEVEL OF UNIT ACTIVITY IN A FEW SPECIFIC BRAIN STEM NUCLEI DURING THE IMMOBILITY REFLEX. INCREASED UNIT ACTIVITY WAS DEMONSTRATED IN THE NUCLEI PONTIS, RETICULARIS PONTIS GIGANTOCELLULARIS, AND MEDULLARY RETICULAR FORMATION. IN THESE AREAS, INCREASES IN UNIT ACTIVITY WERE DETECTED WITH ADJUSTABLE ELECTRODES OVER A 2 TO 3 MM VERTICAL SPAN OF TISSUE IN ANY GIVEN ANIMAL. COMPARISON OF ALL ANIMAL DATA REVEALED THAT INCREASED ACTIVITY IN THE MEDULLARY RETICULAR FORMATION OCCURRED AT ALL ROSTRO-CAUDAL LEVELS BUT WAS RESTRICTED TO THE CENTRAL CORE OF THE BRAIN STEM.

THE DATA ARE INTERPRETED TO INDICATE THAT THESE NUCLEI CONSTITUTE THE MAJOR PORTION OF THE CONTROL SYSTEM FOR THE IMMOBILITY REFLEX AND THAT THIS SYSTEM PROBABLY ACTS BY A DESCENDING INHIBITORY INFLUENCE UPON SPINAL MOTORNEURONS.

INDEX TERMS -- ELECTROENCEPHALOGRAPHY, RABBITS, BRAIN STEM, CEREBELLUM, SINGLE-UNIT ACTIVITY, IMMOBILITY, SPINAL MOTOR NEURONE

01690005 MCGRAW CP, KLEMM WR (DEPARTMENT OF BIOLOGY, INSTITUTE OF LIFE SCIENCE, TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS 77843)
MECHANISMS OF THE IMMOBILITY REFLEX 'ANIMAL HYPNOSIS'--III--NEOCORTICAL INHIBITION IN RATS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

SEVERAL LINES OF EVIDENCE CONVERGE TO SUPPORT THE IDEA THAT THE NEOCORTEX INHIBITS THE IMMOBILITY REFLEX. PHYLOGENETICALLY ADVANCED ANIMALS (RATS AND ABOVE), WITH BETTER DEVELOPED NEOCORTEX, ARE RELATIVELY INSUSCEPTIBLE. NUMEROUS PHYSIOLOGIC AND PHARMACOLOGIC STUDIES INDICATE NEOCORTICAL CAPACITY FOR INHIBITION OF SUBCORTICAL CENTERS. IN THE PRESENT RESEARCH, THE REFLEX COULD NOT BE INDUCED IN SHAM-OPERATED RATS, WHEREAS IT WAS INDUCED IN EITHER PARTIALLY OR COMPLETELY DECORTICATED RATS WHICH WERE PREVIOUSLY INSUSCEPTIBLE. ONTOGENETIC STUDIES REVEALED THAT MATURE RATS, WITH DEVELOPED NEOCORTEX, WERE RELATIVELY INSUSCEPTIBLE, WHEREAS ALL RATS UNDER 10 DAYS OF AGE HAD A HIGH DEGREE OF SUSCEPTIBILITY WHICH DECREASED WITH INCREASING AGE UNTIL A STABLE LEVEL WAS REACHED AT ABOUT 20 DAYS. THIS TIME CORRESPONDS WITH MATURATION OF APICAL DENDRITES IN THE NEOCORTEX.

THIS EVIDENCE, AND THAT PRESENTED IN A COMPANION MANUSCRIPT, HAS LED TO THE FOLLOWING WORKING HYPOTHESIS FOR THE IMMOBILITY REFLEX. A MOTOR INHIBITORY CENTER IS LOCATED IN THE BRAIN STEM, AND IT IS MODULATED BY INHIBITION FROM THE NEOCORTEX AND BY DISINHIBITION FROM THE LIMBIC-DIFFUSE THALAMIC SYSTEMS.

INDEX TERMS -- RATS, NEOCORTEX, AGE, IMMOBILITY

01690006 GOULD E (DEPARTMENT OF MENTAL HYGIENE, SCHOOL OF HYGIENE AND PUBLIC HEALTH, THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND 21205)
COMMUNICATION IN THREE GENERA OF SHREWS 'SORICIDAE'--SUNCUS, BLARINA AND CRYPTOTIS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

ON THE BASIS OF THE NUMBER OF FIGHTS, AVOIDANCES AND HIGH INTENSITY (ABOUT 90-100 DB) CHIRPS AND BUZZES EMITTED DURING 6 MINUTE ENCOUNTERS, CRYPTOTIS IS RATED AS HIGHLY SOCIAL, SUNCUS, QUITE SOLITARY AND BLARINA SOMEWHAT INTERMEDIATE.

DURING AGGRESSIVE ENCOUNTERS, POSTORES TYPICAL OF MANY HIGHER ANIMALS OCCUR AS COINCIDENTAL BEHAVIOR OR IN DARWIN'S TERMS 'SERVICEABLE ASSOCIATED HABITS'. EXPERIMENTS WITH A SHREW ON EACH SIDE OF A THIN GLASS PANE INDICATE THAT THERE IS NO VISUAL COMMUNICATION OF THESE POSTURES.

INDEX TERMS -- SHREW, SOCIAL INTERACTION, POSTURE, AGGRESSION, ANIMAL COMMUNICATION

02690007 OLIVERIO A, BOVET D (DEPARTMENT OF PHARMACOLOGY, UNIVERSITY OF SASSARI, SASSARI, ITALY)
TRANSFER OF AVOIDANCE RESPONDING BETWEEN VISUAL AND AUDITIVE STIMULI PRESENTED IN DIFFERENT TEMPORAL PATTERNS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

GENERALIZATION OF AVOIDANCE RESPONSES BETWEEN TONES OF VARIOUS FREQUENCIES OR TRANSFER OF RESPONDING FROM AUDITIVE TO VISUAL STIMULI WAS ASSESSED IN DIFFERENT STRAINS OF INBRED MICE TRAINED IN A SHUTTLE-BOX.

THE RESULTS SHOWED A LOW TENDENCY TO GENERALIZE BETWEEN DIFFERENT TONES ALONG A CONTINUUM VARYING FROM 500 TO 20,000 CPS. A POSITIVE TRANSFER OF RESPONDING BETWEEN STIMULI IN DIFFERENT SENSORY MODALITIES WAS EVIDENT (1) WHEN THE ANIMALS WERE PREVIOUSLY GIVEN A SHORT SESSION IN WHICH A COMPOUND CS FORMED BY A COMBINATION OF THE ALREADY KNOWN AND THE NEW STIMULUS WAS EMPLOYED AND (2) WHEN STIMULI OF THE SAME REPETITION RATE (PULSED TONE OR PULSED LIGHT) WERE EMPLOYED.

THE MAGNITUDE OF TRANSFER, INDEPENDENT ON THE LEVEL OF TRAINING, WAS DETERMINED BY THE GENETIC CHARACTERISTICS OF THE STRAINS CONSIDERED.

INDEX TERMS -- MICE, INTERSTRAIN DIFFERENCES, STIMULUS GENERALIZATION, VISUAL STIMULATION, AUDITORY STIMULATION, TRANSFER, AVOIDANCE CONDITIONING

02690008 GARREFFA LF (DEPARTMENT OF PSYCHOLOGY, WAYNE STATE UNIVERSITY, DETROIT, MICHIGAN 48202)
GROUP MEMBERSHIP AND GROUP SIZE AS DETERMINANTS OF AGGRESSIVE BEHAVIOR BETWEEN PAIRS OF MALE BOBWHITE QUAIL 'COLINUS VIRGINIANUS'.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

IN ORDER TO INVESTIGATE THE EFFECTS OF IN-GROUP AND OUT-GROUP MEMBERSHIP AND GROUP SIZE ON BEHAVIORAL INTERACTIONS, PAIRS OF MALE BOBWHITE QUAIL (COLINUS VIRGINIANUS) WERE SELECTED SO THAT THEY REPRESENTED BOTH THE IN-GROUP AND OUT-GROUP CONDITIONS AND THREE CONDITIONS OF GROUP SIZE INCLUDING 10, 5, AND 2 IN NUMBER. THE PAIRS WERE PLACED INTO A NEW TERRITORY AND OBSERVED FOR ONE HOUR OR UNTIL AGGRESSION BECAME HARMFUL. DISTINCT BEHAVIORAL CATEGORIES WERE TAKEN NOTE OF--AGGRESSION, RESTING IN BODY CONTACT, AND PACING. NOTES WERE ALSO TAKEN IN LONGHAND. THE RESULTS INDICATED THAT THERE IS A VERY STRONG TENDENCY FOR AGGRESSION TO BE INHIBITED WITHIN GROUPS AND TO BREAK OUT FREQUENTLY BETWEEN GROUPS, AS INDICATED FROM THE RESPECTIVE PAIRS OF QUAIL. TERRITORY AND GROUP SIZE SEEMED TO HAVE LITTLE EFFECT. THESE RESULTS AGREE VERY WELL WITH PREVIOUS RESULTS INDICATING THE PRIME IMPORTANCE OF SOCIAL FACTORS IN THE OCCURRENCE OF AGGRESSION AMONG ANIMALS.

INDEX TERMS -- AGRESSION, BIRDS, GROUP BEHAVIOR, TERRITORIALITY

02690009 KEESAY RE, GOLDSTEIN MD (DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN 53706)
RELATIONSHIP OF ICS ONSET AND OFFSET TO CENTRALLY-ELICITED REINFORCEMENT.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

TRAINS OF INTRACRANIAL STIMULATION (ICS) DIFFERING IN RATE OF ONSET OR OFFSET, OR HAVING A DELAYED ONSET, WERE USED TO REINFORCE THE BEHAVIOR OF CHRONICALLY-IMPLANTED RATS IN A STRAIGHT ALLEY. NO SIGNIFICANT EFFECTS ON RESPONSE SPEED WERE FOUND THAT COULD BE SPECIFICALLY ATTRIBUTED TO MANIPULATION OF EITHER THE ONSET OR OFFSET CHARACTERISTICS OF THE ICS PULSE-TRAIN. DIFFERENCES IN PERFORMANCE RATE WERE DIRECTLY RELATED TO VARIATION IN TOTAL CHARGE PER ICS PULSE-TRAIN, AND INVERSELY RELATED TO DELAY OF ICS. IT IS SUGGESTED THAT THE LOWER RESPONSE RATES PREVIOUSLY REPORTED FOR ICS TRAINS HAVING GRADUAL VS IMMEDIATE ONSET RESULT FROM A DELAY OF REINFORCEMENT INHERENT IN GRADUAL ONSET CONDITIONS, RATHER THAN FROM ANY REINFORCING EFFECT SPECIFIC TO RAPID ONSET OF THE ICS PULSE-TRAIN.

INDEX TERMS -- REINFORCEMENT, ELECTRICAL STIMULATION, HYPOTHALAMUS, RAT, SELF-STIMULATION

03690010 BEATON JM, SMYTHIES JR, BENINGTON F, MORIN RD (DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF ABERDEEN, AND DEPARTMENT OF PSYCHIATRY, UNIVERSITY OF EDINBURGH, AND DEPARTMENT OF SURGERY AND PSYCHIATRY, UNIVERSITY OF ALABAMA)
THE BEHAVIOURAL EFFECTS OF 2,5-DIMETHOXY-4 METHYL-AMPHETAMINE 'DOM' IN RATS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

SNYDER ET AL (1968) HAVE DEMONSTRATED THAT 2,5 DIMETHOXY-4-METHYL-AMPHETAMINE (DOM) IS A POTENT HALLUCINOGEN IN MAN WITH EFFECTS SOMEWHAT DIFFERENT FROM THAT OF LSD SINCE AT LOW DOSES AN 'AMPHETAMINE-LIKE' EUPHORIANT EFFECT IS FOUND.

WE HAVE TESTED THIS COMPOUND, AND THE CORRESPONDING PHENYLETHYLAMINE, IN THE BOVET-GATTI TEST BASED ON THE SIDMAN AVOIDANCE REACTION IN RATS, AND OUR RESULTS CONFIRM SNYDER ET AL'S FINDINGS. AT LOW DOSES (1.25 MG/KG) DOM SHOWED A PURE AMPHETAMINE PROFILE AND AT HIGHER DOSES (5.0 MG/KG) A PURE HALLUCINOGEN PROFILE. THE PHENYLETHYLAMINE DERIVATIVE WAS MUCH LESS ACTIVE BUT THE ACTIVITY WAS INCREASED (AND WAS SIMILAR IN QUANTITY) FOLLOWING PRETREATMENT WITH MAO. AN ADDITIONAL OBSERVATION OF INTEREST WAS THAT FOLLOWING A 5 MG/KG DOSE OF DOM THE RATS WERE ALMOST COMPLETELY RESISTANT TO 25 MG/KG OF MESCALINE TWO WEEKS LATER.

INDEX TERMS -- RATS, 2-5 DIMETHOXY-4-METHYL-AMPHETAMINE, MESCALINE, AVOIDANCE BEHAVIOR

03690011 SNYDER SH, LAMPARELLA V (DEPARTMENTS OF PHARMACOLOGY AND EXPERIMENTAL THEREPEUTICS, PSYCHIATRY AND BEHAVIORAL SCIENCES, THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, BALTIMORE, MARYLAND 21205)
PSYCHEDELIC EXPERIENCES IN HYSTERICAL PSYCHOSIS AND SCHIZOPHRENIA.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE 'PSYCHEDELIC' DRUGS PRODUCE A SYNDROME WHICH HAS BEEN LIKENED TO AN EXPERIMENTAL FORM OF SCHIZOPHRENIA ALTHOUGH THERE ARE NUMEROUS DIFFERENCES. IN ORDER TO EXAMINE THE POSSIBILITY THAT THE EFFECTS OF PSYCHEDELIC DRUGS MAY RESEMBLE SUBJECTIVE EXPERIENCES IN SOME FORMS OF MENTAL ILLNESS MORE CLOSELY THAN THOSE IN OTHER FORMS, WE HAVE ANALYZED CASE HISTORIES OF HOSPITALIZED PATIENTS OF VARYING DIAGNOSES FOR THE INCIDENCE AND CHARACTERISTICS OF CERTAIN EXPERIENCES THAT RESEMBLE THOSE PRODUCED BY PSYCHEDELIC DRUGS. THE PATIENTS WHOSE HISTORIES WERE ANALYZED INCLUDED RECOVERED AND DETERIORATED SCHIZOPHRENICS AS WELL AS A GROUP OF PATIENTS DIAGNOSED 'HYSTERICAL PSYCHOSIS'. THERE WERE MARKED DIFFERENCES BETWEEN THESE GROUPS IN THE INCIDENCE OF PSYCHEDELIC EXPERIENCES. THE HYSTERICAL PSYCHOTIC PATIENTS HAD SIX TIMES THE INCIDENCE OF PSYCHEDELIC EXPERIENCES AS THE DETERIORATED SCHIZOPHRENICS WHILE VALUES FOR THE RECOVERED SCHIZOPHRENICS WERE INTERMEDIATE. THE PROPORTION OF PSYCHEDELIC EXPERIENCES IN DIFFERENT CATEGORIES WAS SIMILAR IN THE DIFFERENT PATIENT GROUPS. CLOSE RESEMBLANCE OF ACUTE PSYCHOTIC EPISODES IN HYSTERICAL PATIENTS TO 'PSYCHEDELIC' EXPERIENCES SUGGESTS THAT SIMILAR NEUROPSYCHOLOGICAL MECHANISMS MAY BE OPERATIVE IN THESE TWO STATES.

INDEX TERMS -- HYSTERIA, PSYCHOTICS, SCHIZOPHRENICS

03690012 RECHTSCHAFFEN A, DATES R, TOBIAS M, WHITEHEAD WE (DEPARTMENTS OF PSYCHIATRY AND PSYCHOLOGY, THE UNIVERSITY OF CHICAGO, CHICAGO, ILLINOIS 60637)
THE EFFECT OF LIGHTS-OFF STIMULATION ON THE DISTRIBUTION OF PARADOXICAL SLEEP IN THE RAT.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE RECENT FINDING BY LISK AND SAWYER THAT TURNING LIGHTS OFF TRIGGERS PARADOXICAL SLEEP IN THE FEMALE RAT WAS CONFIRMED IN MALE RATS WHICH WERE CHRONICALLY IMPLANTED FOR RECORDING BOTH EEG AND EMG ACTIVITY. CONTRARY TO THE REPORT OF LISK AND SAWYER, PARADOXICAL SLEEP COULD BE TRIGGERED ONLY WHEN THE RAT WAS IN SLOW WAVE SLEEP AT THE TIME OF STIMULATION AND NOT WHEN HE WAS AWAKE. AN ATTEMPT WAS MADE TO INCREASE THE TOTAL AMOUNT OF PARADOXICAL SLEEP BY TURNING LIGHTS OFF FOR 5 MIN AT 10 MIN INTERVALS. THIS 5 MIN LIGHTS-ON--5 MIN, LIGHTS-OFF CYCLE WAS MAINTAINED CONTINUOUSLY FOR FIVE DAYS. DURING LIGHTS-OFF, THE PERCENTAGE OF TOTAL SLEEP SPENT IN PARADOXICAL SLEEP INCREASED TO 32.7 PER CENT FROM A BASELINE OF ABOUT 20 PER CENT. HOWEVER, DURING THE LIGHTS-ON PORTION OF THE CYCLE, THERE WAS A DECREASE TO 6.5 PER CENT. THUS THE TRIGGERING OF PARADOXICAL SLEEP BY LIGHTS-OFF APPEARED TO PRODUCE A 'NEGATIVE REBOUND' WITH THE NET RESULT THAT TOTAL PARADOXICAL SLEEP REMAINED AT ABOUT BASELINE LEVELS. IT WAS SUGGESTED THAT NORMALLY THE POTENTIAL FOR PARADOXICAL SLEEP IS RELATIVELY FINITE AND FULLY REALIZED IN THE LABORATORY RAT AND THAT EXOGENOUS STIMULATION MAY AFFECT THE DISTRIBUTION OF PARADOXICAL SLEEP BUT NOT INCREASE THE TOTAL AMOUNT OF IT.

INDEX TERMS -- RATS, PARADOXICAL SLEEP, LIGHT, DARKNESS

04690013 ROBUSTELLI F, GLICK SD, GOLDFARB TL, GELLER A, JARVIK ME (ALBERT EINSTEIN COLLEGE OF MEDICINE, NEW YORK)
A FURTHER ANALYSIS OF SCOPOLAMINE IMPAIRMENT OF DELAYED MATCHING WITH MONKEYS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE EFFECT OF INTRAMUSCULAR ADMINISTRATION OF SCOPOLAMINE HYDROBROMIDE WAS STUDIED IN A THIRST MOTIVATED DELAYED MATCHING TEST WITH MONKEYS. FOUR DIFFERENT DELAY INTERVALS WERE RANDOMLY PRESENTED--0 SEC, 2 SEC, 8 SEC AND 32 SEC. IN ADDITION, TRIALS OF SIMULTANEOUS MATCHING WERE GIVEN, ALSO IN RANDOMIZED ORDER. BOTH ACCURACY AND RESPONSE RATE WERE IMPAIRED BY THE DRUG UNDER ALL DELAY CONDITIONS, AS WELL AS IN THE SIMULTANEOUS MATCHING. IN A SECOND SERIES OF EXPERIMENTS, THE MOTIVATIONAL LEVEL OF THE SUBJECTS WAS VARIED. A DECREASE OF THIS LEVEL PRODUCED A DECREASE OF RESPONSE RATE, AND IMPAIRED ACCURACY. AN INCREASE OF THE MOTIVATIONAL LEVEL RESULTED IN AN INCREASE OF RESPONSE RATE, WITH AN IMPROVEMENT IN ACCURACY. IN THE SCOPOLAMINE TREATED ANIMALS THE INCREASE OF THE MOTIVATIONAL LEVEL COULD COUNTERACT THE SCOPOLAMINE PRODUCED DECREASE OF RESPONSE RATE, THOUGH ACCURACY WAS STILL IMPAIRED. RESULTS ARE DISCUSSED IN RELATION TO THE MAIN HYPOTHESES SO FAR SUGGESTED OF THE BEHAVIORAL EFFECTS OF ANTICHOLINERGIC SUBSTANCES. SHORT TERM MEMORY DEFICIT OR COMPETITIVE RESPONSES DISINHIBITION HYPOTHESES SEEMED NOT TO BE CONFIRMED. FURTHERMORE, MANIPULATION OF THE MOTIVATIONAL VARIABLE SUGGESTED THAT, THOUGH SCOPOLAMINE PRODUCED A DECREASE OF THE MOTIVATIONAL LEVEL, THIS DECREASE COULD NOT ACCOUNT FOR ALL OF THE IMPAIRMENT OF THE DELAYED RESPONSE PERFORMANCE. A PERCEPTUAL OR AN ASSOCIATIVE DISTURBANCE SEEMED, THEREFORE, TO BE THE MOST LIKELY CAUSE FOR THE RESIDUAL PART OF SUCH IMPAIRMENT.

INDEX TERMS -- DELAYED RESPONSE, SCOPOLAMINE, ANTICHOLINERGICS, MOTIVATIONAL LEVEL, MONKEYS, MEMORY

04690014 WEINBERGER NM, GOODMAN DA, KITZES LM (DEPARTMENT OF PSYCHOBIOLOGY, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF CALIFORNIA, IRVINE, CALIFORNIA 92664)
HABITUATION OF EYE MOVEMENTS IN THE CAT--AUDITORY SYSTEM AND RETICULAR FORMATION EVENTS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

PREDICTIVE RELATIONSHIPS BETWEEN NEURAL EVENTS IN THE BRAIN STEM AND BEHAVIOR WERE SOUGHT DURING ELICITATION AND HABITUATION OF EYE MOVEMENTS TO APERIODIC MONAURAL AUDITORY STIMULATION IN UNANESTHETIZED (ENCEPHALE ISOLE) CATS. PEAK AMPLITUDE OF CONJUGATE HORIZONTAL EYE DEVIATION WAS CORRELATED WITH AUDITORY SYSTEM EVOKED POTENTIALS DURING THE FIRST 200 MSEC OF STIMULUS PRESENTATION, I.E., PRIOR TO ELICITATION OF EYE MOVEMENTS. THE RESULTS FAIL TO SUPPORT THE NOTION THAT BEHAVIORAL HABITUATION IS A FUNCTION OF PERIPHERAL AUDITORY SYSTEM BLOCKADE. RETICULAR FORMATION TONIC ACTIVITY LEVEL WAS PREDICTIVE OF EYE MOVEMENT AMPLITUDE.

INDEX TERMS -- CATS, EYE MOVEMENTS, AUDITORY STIMULATION, EVOKED POTENTIALS, HABITUATION, RETICULAR FORMATION

04690015 VICK LH, BANKS EM (DEPARTMENT OF ZOOLOGY, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS 61801)
THE ESTROUS CYCLE AND RELATED BEHAVIOR IN THE MONGOLIAN GERBIL MERIONES-UNGUICULATUS MILNE-EDWARDS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

INVESTIGATIONS WERE UNDERTAKEN TO DETERMINE THE LENGTH AND NATURE OF THE ESTROUS CYCLE IN THE MONGOLIAN GERBIL, MERIONES UNGUICULATUS. MAJOR CRITERIA WERE VAGINAL SMEARS, ACTIVITY MEASURES, RECEPTIVITY TO MALES, HISTOLOGY OF THE OVARY AND REPRODUCTIVE ORGAN WEIGHTS. VAGINAL SMEARS, TAKEN DAILY FOR PERIODS OF FROM 30 TO 90 DAYS INDICATED THAT MATURE FEMALES UNDERGO A NORMAL ESTROUS CYCLE OF APPROXIMATELY FIVE DAYS (X=5.34 +/- 1.25 DAYS, N=90). CYCLES IN JUVENILE FEMALES ARE SLIGHTLY LONGER THAN THOSE IN ADULTS. ACTIVITY WAS MEASURED IN REVOLUTIONS PER HOUR OVER EACH 24-HOUR PERIOD IN AN ACTIVITY WHEEL OF 30.25 CM DIAMETER. A 5-6 DAY CYCLE OF ACTIVITY, WITH A STRONG PEAK OF ACTIVITY FALLING ON OR IMMEDIATELY AFTER THE ONSET OF VAGINAL ESTRUS, IS FOUND IN MATURE CYCLING FEMALES. SIMILAR CYCLIC PEAKS ARE NOT PRESENT IN THE ACTIVITY PATTERNS OF MALES OR OF PREGNANT FEMALES. AT KNOWN STAGES OF THE VAGINAL ESTROUS CYCLE, FEMALES WERE SACRIFICED AND THEIR OVARIES SUBJECTED TO HISTOLOGICAL EXAMINATION, AND A COMPARISON OF OVARIAN HISTOLOGY, ORGAN WEIGHTS AND VAGINAL SMEAR DATA WAS MADE. THE UTERINE WEIGHT DOUBLED AT THE TIME OF VAGINAL ESTROUS--OVARIAN FOLLICLES REACHED MAXIMAL DEVELOPMENT SHORTLY BEFORE THE ONSET OF ESTRUS, AND CORPORA LUTEA WERE FOUND IN THE OVARIES AT THIS TIME. ALL MEASURES INDICATE A REGULAR ESTROUS CYCLE OF 5-6 DAYS IN MATURE FEMALE GERBILS.

INDEX TERMS -- ESTRUS CYCLE, GERBIL, AGE DIFFERENCES

04690016 WELCH BL, WELCH AS (UNIVERSITY OF TENNESSEE, MEMORIAL RESEARCH CENTER AND HOSPITAL, KNOXVILLE, TENNESSEE 37920)
FIGHTING--PREFERENTIAL LOWERING OF NOREPINEPHRINE AND DOPAMINE IN THE BRAINSTEM, CONCOMITANT WITH A DEPLETION OF EPINEPHRINE FROM THE ADRENAL MEDULLA.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

MALE WHITE SWISS MICE THAT HAD BEEN MADE AGGRESSIVE BY LONG-TERM ISOLATION WERE PLACED TOGETHER IN GROUPS OF FOUR AND ALLOWED TO FIGHT FOR 5, 45, AND 150 MIN. NOREPINEPHRINE AND DOPAMINE WERE LOWERED IN THE BRAINSTEM AND, AT THE LONGEST PERIOD OF TIME, WERE ELEVATED IN THE TELENCEPHALON. SEROTONIN WAS ELEVATED IN THE MIDBRAIN. IN MICE THAT FOUGHT FOR 60 MIN, EPINEPHRINE WAS MARKEDLY LOWERED IN THE ADRENAL MEDULLA AND THE SPLEEN WAS SIGNIFICANTLY CONTRACTED. WHILE THIS APPARENT PARALLELISM BETWEEN CENTRAL AND PERIPHERAL CATECHOLAMINERGIC ACTIVATION DURING STRESS MAY BE INDICATIVE OF A FUNCTIONAL RELATIONSHIP BETWEEN THEM, SPECIFIC CAUSE AND EFFECT HAS NOT YET BEEN PROVEN.

INDEX TERMS -- WHITE MICE, FIGHTING, CATECHOLAMINES, SEROTONIN, BRAIN REGIONS, ADRENAL MEDULLA, SPLEEN

04690017 TAUBER ES, WEITZMAN ED (DEPARTMENT OF PSYCHOLOGY, YESHIVA UNIVERSITY, NEW YORK, AND SAUL R KOREY DEPARTMENT OF NEUROLOGY, ALBERT EINSTEIN COLLEGE OF MEDICINE, NEW YORK)
EYE MOVEMENTS DURING BEHAVIORAL INACTIVITY IN CERTAIN BERMUDA REEF FISH.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

DETAILED BEHAVIORAL AND PHYSIOLOGIC OBSERVATIONS WERE CARRIED OUT DURING THE ACTIVITY-INACTIVITY CYCLE ON 2 FAMILIES OF DIURNAL FOVEATE REEF FISH (WRASSES, IRIDEO BIVITTATA, AND PARROT FISH, SCARUS GUACAMAIA, SCARUS VETULA, SCARUS COERULEUS, SPARISOMA VIRIDE, SPARISOMA ABILDGAARDI, SPARISOMA AQUALIDUM, SPARISOMA CROICENSIS, SPARISOMA AUROFRENATUM). OBSERVATIONS OF EYE MOVEMENTS, RESPIRATORY RATE, FIN AND BODY MOVEMENTS AND COLOR PATTERNS WERE MADE ON FISH MAINTAINED IN SEA WATER TANKS UNDER NATURAL 24 DAY-NIGHT LIGHTING AS WELL AS IN A CONTROLLED LIGHT-DARK LABORATORY REGIMEN. DURING THE DARK PHASE PROLONGED DIMINUTION OF ACTIVITY, DIMINISHED AND IRREGULAR RESPIRATORY RATE, AND INCREASED RESPONSIVENESS TO ALERTING STIMULI OCCURRED MANIFESTED BY A TOLERANCE TO HANDLING. INDEPENDENT (NON-CONJUGATE) EYE MOVEMENTS WERE CLEARLY PRESENT DURING PERIODS OF PROLONGED BEHAVIORAL INACTIVITY. FOR SEVERAL HOURS ALL SPECIES OF PARROT FISH HAD AT LEAST 2 TO 4 EYE MOVEMENTS FOR 30 SECOND PERIODS WHILE INACTIVE. IN CONTRAST TO AFOVEATE INFRAMAMMALIAN SPECIES, ALL FOVEATE SPECIES STUDIED THUS FAR REVEALED EYE MOVEMENTS DURING SLEEP.

INDEX TERMS -- FISH, EYE MOVEMENTS, PHYSIOLOGICAL MONITORING, BEHAVIOR (ANIMAL), SLEEP

04690018 ROBUSTELLI F, JARVIK ME (ALBERT EINSTEIN COLLEGE OF MEDICINE, NEW YORK)
INTERACTION BETWEEN SHORT AND LONG DELAY INTERVALS IN A DELAYED MATCHING TEST WITH MONKEYS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE INTERACTION BETWEEN SHORT AND LONG DELAY INTERVALS WAS STUDIED IN A DELAYED MATCHING TEST WITH MONKEYS. THE RESULTS INDICATE THAT RANDOM INCLUSION IN THE SAME SESSION OF SHORT (1 SEC) AND LONG (32 SEC) DELAY INTERVALS IMPAIRS PERFORMANCES IN THE LONG DELAY INTERVALS. SHORT DELAY INTERVAL PERFORMANCES ARE NOT IMPAIRED.

INDEX TERMS -- MONKEYS, DELAYED RESPONSE, MATCHING TESTS, RETENTION

05690019 JARRARD LE, KORN JH (CARNEGIE-MELLON UNIVERSITY)
EFFECTS OF HIPPOCAMPAL LESIONS ON HEART RATE DURING HABITUATION AND PASSIVE AVOIDANCE.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

IN ORDER TO TEST THE HYPOTHESIS THAT DEFICITS IN BEHAVIOR OF HIPPOCAMPAL LESIONED ANIMALS ARE DUE TO CHANGES IN EMOTIONAL REACTIVITY, HEART RATE (HR) OF HIPPOCAMPAL ABLATED AND CONTROL SUBJECTS WAS RECORDED DURING HABITUATION, PRELIMINARY TRAINING IN AN APPROACH RESPONSE, ACQUISITION OF AN APPROACH RESPONSE, AND PASSIVE AVOIDANCE LEARNING. HIPPOCAMPAL ANIMALS EXHIBITED SLOWER HABITUATION OF ACTIVITY BUT NOT OF HR. ALTHOUGH HR OF HIPPOCAMPAL SUBJECTS DIFFERED FROM CONTROLS EARLY IN LEARNING AND IN PASSIVE AVOIDANCE IMMEDIATELY FOLLOWING THE SHOCK TRIAL, IT IS NOT FELT THAT THESE DIFFERENCES ACCOUNT FOR THE INABILITY TO INHIBIT AN APPROACH RESPONSE (I.E., PASSIVE AVOIDANCE DEFICIT) OBSERVED IN HIPPOCAMPAL SUBJECTS IN THIS AND PREVIOUS EXPERIMENTS.

INDEX TERMS -- LESIONS, HEART RATE, HABITUATION, AVOIDANCE, HIPPOCAMPUS, EMOTIONS

05690020 JOHN ER, MORGADES PP (BRAIN RESEARCH LABORATORIES, DEPARTMENT OF PSYCHIATRY, NEW YORK MEDICAL COLLEGE, NEW YORK, NEW YORK 10029)
THE PATTERN AND ANATOMICAL DISTRIBUTION OF EVOKED POTENTIALS AND MULTIPLE UNIT ACTIVITY ELICITED BY CONDITIONED STIMULI IN TRAINED CATS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

USING CHRONICALLY IMPLANTED MICRODRIVES, EVOKED POTENTIALS AND MULTIPLE UNIT RESPONSES WERE SIMULTANEOUSLY RECORDED AS MICROELECTRODES WERE MOVED THROUGH THE BRAINS OF TRAINED AND UNTRAINED CATS. RESPONSE GRADIENTS AND CORRELATIONS SHOWED THAT DIFFERENTIATED STIMULI ELICITED CHARACTERISTIC RESPONSES DISTRIBUTED THROUGHOUT VERY EXTENSIVE REGIONS. GREATER VARIABILITY WAS OBSERVED IN TRAINED ANIMALS DURING INAPPROPRIATE BEHAVIOR OR PRESENTATION OF NOVEL STIMULI AND WAS ALSO SEEN IN UNTRAINED CATS.

INDEX TERMS -- CONDITIONED RESPONSES, MICROELECTRODES, MICRODRIVE, GRADIENTS, EVOKED POTENTIALS, UNIT SLOW-WAVE CORRELATIONS, INFORMATION PROCESSING, CATS

05690021 WEINSTEIN SA, ANNAU Z (LABORATORY OF BEHAVIORAL PHYSIOLOGY, DEPT. OF ENVIRONMENTAL MEDICINE AND DEPT. OF PSYCHIATRY AND BEHAVIORAL SCIENCE, THE JOHNS HOPKINS UNIVERSITY SCHOOL OF HYGIENE AND PUBLIC HEALTH, BALTIMORE 5, MARYLAND)
BEHAVIORAL AND PHYSIOLOGICAL MEASURES OF ADAPTATION TO BRIEF REPEATED HYPOXIC EXPOSURES.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

DAILY EXPOSURE TO 8 AND 11 PER CENT OXYGEN FOR 16 MINUTES PRODUCED DECREMENTS IN SELF STIMULATION OF THE HYPOTHALAMUS IN RATS. AS EXPOSURES WERE REPEATED THE DECREMENTS BECAME LESS MARKED. THERE WERE NO CHANGES IN ARTERIAL PH, PCO2, PO2, O2 SATURATION OR HEMATOCRIT ACCOMPANYING THIS BEHAVIORAL ADAPTATION. THE RESULTS ARE DISCUSSED IN TERMS OF POSSIBLE METABOLIC ADAPTATIONS IN THE CENTRAL NERVOUS SYSTEM.

INDEX TERMS -- OXYGEN, HYPOTHALAMUS, RATS, SELF STIMULATION, HYPOXIA, BLOOD, ACCLIMATIZATION

05690022 LEVITAN H, BETYAR L (DEPARTMENT OF ANATOMY AND BRAIN RESEARCH INSTITUTE, UNIVERSITY OF CALIFORNIA, LOS ANGGLES, CALIFORNIA 90024)
NEUROPHYSIOLOGICAL DATA ANALYSIS USING A REMOTE CONSOLE COMPUTING SYSTEM.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

A TIME-SHARED, MULTIPLE ACCESS COMPUTING SYSTEM WITH REMOTE CONSOLES HAS BEEN DEVELOPED FOR USE BY PHYSIOLOGISTS. THIS INTENT IS REFLECTED IN THE DESIGN OF THE INPUT/OUTPUT CONSOLE UNIT, THE ANALOG-TO-DIGITAL CONVERSION ROUTINES, AND THE PROGRAMMING LANGUAGE. THE CAPABILITY, VERSATILITY, AND LIMITATIONS OF THE SYSTEM ARE DEMONSTRATED IN THIS COMMUNICATION BY DESCRIBING ITS USE IN THE ANALYSIS OF NEUROPHYSIOLOGICAL DATA. THE NEUROPHYSIOLOGICAL PROBLEM IS CONCERNED WITH THE RELATION BETWEEN AN IMPULSE TRAIN PROVIDING INPUT TO A NEURONAL JUNCTION AND THE FLUCTUATIONS IT PRODUCES IN THE POSTJUNCTIONAL MEMBRANE POTENTIAL. THE DATA IS OF TWO FORMS--(1) A TRAIN OF IMPULSES AND (2) POTENTIAL FLUCTUATIONS IN TIME. ANALYSIS IS FOCUSED ON A STATISTICAL DESCRIPTION OF THE INTERSPIKE INTERVALS AND THE FLUCTUATIONS IN POTENTIAL. THE ANALOG-TO-DIGITAL CONVERSION USED DEPENDS ON THE TYPE OF ANALYSIS TO BE PERFORMED. THE CAPABILITIES OF THESE ROUTINES AND THE WAY THEY ARE CONTROLLED BY THE CONSOLE ARE DESCRIBED. THE REMOTE CONSOLES INPUT CONSISTS OF A 64 BUTTON KEYBOARD. ITS PRINCIPAL OUTPUT DEVICE IS A MEMORY SCOPE. THE LAYOUT OF THE KEYBOARD IS DESCRIBED AND THE PROGRAMMING LANGUAGE AND TECHNIQUE DEMONSTRATED. SOME RESULTS OF THE NEUROPHYSIOLOGICAL DATA ANALYSIS ARE SHOWN.

AN EVALUATION OF THE SYSTEM REVEALS THAT THE CONSOLES LAYOUT, A/D CONVERSION, AND PROGRAMMING ROUTINES ARE VERY APPROPRIATE AND CONVENIENT FOR THE USE OF BIOLOGISTS. THE ALMOST CONTINUOUS MODERNIZATION OF THE SYSTEMS HARDWARE AND SOFTWARE HAS ENHANCED ITS VERSATILITY, BUT HAS ALSO CAUSED AN INORDINATE LOSS OF TIME. THIS HAS BEEN THE MOST FREQUENT CRITICISM OF THE SYSTEM.

INDEX TERMS -- NEUROPHYSIOLOGICAL, DATA ANALYSIS, COMPUTING,

06690023 ZORNETZER S, MCGAUGH JL (DEPARTMENT OF PSYCHOBIOLOGY, UNIVERSITY OF CALIFORNIA, IRVINE, CALIFORNIA 92664)
EFFECTS OF ELECTROCONVULSIVE SHOCK UPON INHIBITORY AVOIDANCE--THE PERSISTENCE AND STABILITY OF AMNESIA.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THESE EXPERIMENTS INVESTIGATED THE SUGGESTIONS THAT, (1) THE EFFECT OF ECS UPON A LEARNED INHIBITORY AVOIDANCE RESPONSE IN MICE MIGHT BE DUE TO A TEMPORARY INCREASE IN LOCOMOTOR ACTIVITY FOLLOWING TRANSCORNEAL ECS ADMINISTRATION AND, (2) ECS MIGHT INTERFERE WITH MEMORY RETRIEVAL, RATHER THAN MEMORY CONSOLIDATION, BY PRODUCING A TEMPORARY CHANGE IN BRAIN EXCITABILITY. THE RESULTS SUPPORT NEITHER HYPOTHESIS BUT, RATHER, PROVIDE FURTHER SUPPORT FOR THE VIEW THAT ECS-PRODUCED RETROGRADE AMNESIA IS HIGHLY STABLE.

INDEX TERMS -- ECS, AVOIDANCE, MICE, MEMORY, AMNESIA, ACTIVITY

06690024 DENTON DA, ORCHARD E, WELLER S (HOWARD FLOREY LABORATORIES OF EXPERIMENTAL PHYSIOLOGY, UNIVERSITY OF MELBOURNE, PARKVILLE 3052, VICTORIA, AUSTRALIA)
THE RELATION BETWEEN VOLUNTARY SODIUM INTAKE AND BODY SODIUM BALANCE IN NORMAL AND ADRENALECTOMIZED SHEEP.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THE RELATION BETWEEN VOLUNTARY INTAKE OF SODIUM SOLUTION (300 M EQUIV/L NAHCO3) AND BODY SODIUM BALANCE WAS STUDIED IN NORMAL AND ADRENALECTOMIZED SHEEP. THE ANIMALS WERE KEPT IN METABOLISM CAGES AND SODIUM DEFICIENCY WAS PRODUCED BY ALLOWING UNCOMPENSATED SALIVARY LOSS FROM A PAROTID FISTULA FOR VARYING PERIODS OF TIME (24-72 HOURS). WITH THE ADRENALECTOMIZED SHEEP, IN EACH INSTANCE SODIUM APPETITE WAS TESTED 24-48 HOURS AFTER THE LAST DOSE OF MAINTENANCE STEROID HORMONE, AND THUS WHEN BLOOD STEROID LEVEL WAS INSIGNIFICANT.

IN BOTH ADRENAL INTACT AND ADRENALECTOMIZED ANIMALS, VOLUNTARY SODIUM INTAKE WAS SIGNIFICANTLY CORRELATED WITH SODIUM BALANCE. THE RESULTS INDICATE THAT SALT APPETITE MAY BE GENERATED COMMENSURATELY WITH BODY DEFICIT INDEPENDENTLY OF THE CONTEMPORARY LEVEL OF ALDOSTERONE IN CIRCULATING BLOOD.

INDEX TERMS -- SALT APPETITE, SODIUM BALANCE, SHEEP, ADRENALECTOMY, ADRENAL HORMONE, PAROTID FISTULA, ALDOSTERONE

06690025 GERBEN MJ (U.S. ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE, NATICK, MASSACHUSETTS 01760)
ELICITED LOCOMOTOR BEHAVIOR DURING HYPOTHALAMIC SELF-STIMULATION.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

LOCOMOTOR BEHAVIOR ELICITED BY ELECTRICAL STIMULATION OF THE POSTERIOR HYPOTHALAMUS WAS MEASURED IN 6 RATS, IN BOTH A RUNNING WHEEL AND AN OPERANT SELF-STIMULATION CHAMBER. LOCOMOTION WAS ELICITED BY CONTINUOUS, INTERMITTENT AND BEHAVIOR-CONTINGENT HYPOTHALAMIC STIMULATION. PAUSES IN OPERANT SELF-STIMULATION WERE HIGHLY CORRELATED WITH LOCOMOTOR RESPONSES. LOCOMOTION DURING SELF-STIMULATION WAS CONTROLLABLE USING INTERMITTENT SCHEDULES OF REINFORCEMENT.

INDEX TERMS -- LOCOMOTOR, ELECTRICAL STIMULATION, HYPOTHALAMUS, RATS, SELF STIMULATION

07690026 ROBUSTELLI F, GELLER A, ARON C, JARVIK ME (ALBERT EINSTEIN COLLEGE OF MEDICINE, NEW YORK)
THE RELATIONSHIP BETWEEN THE AMNESIC EFFECT OF ELECTROCONVULSIVE SHOCK AND STRENGTH OF CONDITIONING IN A PASSIVE AVOIDANCE TASK.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

FOOT-SHOCK WAS DELAYED 0, 30, AND 240 SECONDS AFTER PERFORMANCE OF THE STEP-THROUGH RESPONSE IN A PASSIVE AVOIDANCE TASK WITH MICE, IN ORDER TO OBTAIN DIFFERENCES IN THE STRENGTH OF CONDITIONING AS MEASURED BY LATENCIES IN THE RETEST TRIAL. A SINGLE ELECTROCONVULSIVE SHOCK WAS ADMINISTERED 20 SECONDS, 2 MINUTES, 1 HOUR OR 6 HOURS AFTER THE END OF THE TRAINING TRIAL.

THE DISRUPTIVE EFFECT OF ELECTROCONVULSIVE SHOCK WAS INVERSELY RELATED BOTH TO THE INTERVAL BETWEEN THE TRAINING TRIAL AND THE ELECTROCONVULSIVE SHOCK ADMINISTRATION AND TO THE STRENGTH OF THE CONDITIONED RESPONSE. THE RETENTION OF THE STRONGEST TYPE OF CONDITIONED RESPONSE, OBTAINED WITH THE 0 SECOND DELAY OF PUNISHMENT IN TRAINING, WAS MERELY DECREASED BUT NOT ABOLISHED, EVEN BY ADMINISTRATION OF ELECTROCONVULSIVE SHOCK 20 SECONDS AFTER TRAINING. HOWEVER, NO RETENTION OF THE WEAKER TYPES OF THE CONDITIONED RESPONSE, OBTAINED BY DELAYING THE PUNISHMENT 30 OR 240 SECONDS, COULD BE SHOWN WITH THE SHORTER INTERVALS BETWEEN TRAINING TRIAL AND ELECTROCONVULSIVE SHOCK ADMINISTRATION.

THE RESULTS ARE DISCUSSED IN RELATION TO THE FOLLOWING TOPICS--(1) RELATIONSHIP BETWEEN CONSOLIDATION AND INCUBATION HYPOTHESES IN THE INTERPRETATION OF THE ELECTROCONVULSIVE SHOCK GRADIENT, (2) RELATIONSHIP BETWEEN THE AMNESIC EFFECT OF ELECTROCONVULSIVE SHOCK AND DIFFICULTY OF TASK, (3) THE OCCURRENCE OF EFFECTS CLEARLY OTHER THAN THE AMNESIC ONES OF THE ELECTROCONVULSIVE SHOCK ADMINISTRATION, WHICH COULD BE EASILY DETECTED IN THE CASE OF THE WEAKEST TYPE OF CONDITIONED RESPONSE.

INDEX TERMS -- ELECTROCONVULSIVE SHOCK, MICE, AVOIDANCE, CONSOLIDATION, PUNISHMENT, MEMORY

07690027 SMYTHIES JR (DEPARTMENT OF PSYCHIATRY, UNIVERSITY OF EDINBURGH)
NEUROCHEMICAL ASPECTS OF INFORMATION PROCESSING IN THE BRAIN.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

THIS PAPER PRESENTS A SERIES OF HYPOTHESES ABOUT POSSIBLE MODES OF INFORMATION TRANSFER IN THE BRAIN INCLUDING THE FORMATION OF THE ENGRAMS ENCODING PERMANENT MEMORY. IT HAS BEEN CLASSICALLY SUPPOSED THAT INFORMATION TRANSFER IN THE BRAIN IS SOLELY A FUNCTION OF ELECTRO-CHEMICAL EVENTS SUCH AS AXONAL AND DENDRITIC POTENTIALS AND THEIR ACCOMPANYING ELECTRIC FIELDS. IT HAS BEEN ASSUMED THAT THE ONLY FUNCTION OF CHEMICALS RELEASED AT THE SYNAPSE IS TO ALTER THE POLARITY OF THE POST-SYNAPTIC MEMBRANE AND THUS TO GENERATE EPSPS AND IPSPS. IT HAS ALSO BEEN ASSUMED THAT NEURONES DO NOT CHANGE THEIR CHEMICAL SPECIFICITY TO ANY EXTENT DURING LIFE.

WEISS HAS POSTULATED, ON THE CONTRARY, THAT NEURONES MAY CONTINUALLY CHANGE THEIR CHEMICAL SPECIFICITY DURING LIFE. IMPORTANT INFORMATION MAY THUS BE ENCODED AND IMPORTANT MECHANISMS MEDIATING BEHAVIOUR MAY DEPEND ON THIS. THIS PAPER EXPLORES POSSIBLE CHEMICAL MECHANISMS THAT MAY BE INVOLVED AND THEIR POSSIBLE FUNCTIONAL SIGNIFICANCE. IT IS POSTULATED THAT THERE MAY BE TWO MAIN CLASSES OF CHEMICAL RELEASED INTO A SYNAPSE (1) ORDINARY POLARIZING TRAMSMITTERS AND (2) CHEMODYNAMIC AGENTS. THE FUNCTION OF THE LATTER IS TO BE TAKEN UP BY THE POST SYNAPTIC NEURONE AND THERE TO ALTER ITS CHEMICAL SPECIFICITY BY A NUMBER OF POSSIBLE MECHANISMS WHICH ARE OUTLINED. THIS WOULD LEAD TO AN ALTERATION OF THE PROPERTIES OF THE SYNAPSES AND A POSSIBLE OVER-ALL MODIFICATION OF THE CHEMICAL SPECIFICITY OF THE MEMBRANE. ALL THESE MECHANISMS COULD CONTRIBUTE TO THE FORMATION OF THE ENGRAM. A NUMBER OF EXPERIMENTS SUGGESTED BY THE HYPOTHESIS ARE INDICATED.

INDEX TERMS -- LEARNING, CHEMODYNAMIC AGENT, SYNAPTIC MECHANISM, DNA, RNA, PROTEIN SYNTHESIS, ENGRAM, BIOGENIC AMINES, MEMORY

07690028 ZEINER AR, PEEKE HVS (DEPARTMENT OF PSYCHIATRY, UNIVERSITY OF CALIFORNIA AND LABORATORY OF PSYCHOBIOLOGY, LENGLEY PORTER INSTITUTE, SAN FRANCISCO)
HABITUATION OF RESPONSE TO DISTRESS CRIES IN THE RAT--MEASUREMENT BY AN INNATE SUPPRESSION TECHNIQUE.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

A TECHNIQUE FOR OBJECTIVELY MEASURING BEHAVIORAL HABITUATION TO AUDITORY STIMULI IN RATS IS DESCRIBED. RATS (N=21) WERE TRAINED TO DRINK THEIR WATER RATION DURING DAILY 10 MINUTE SESSIONS FROM A DRINKING SPOUT WHICH PROTRUDED FROM ONE WALL OF A SOUND ATTENUATED BOOTH. AFTER SEVEN DAYS, RATS WERE DRINKING ALMOST CONTINUOUSLY. TAPED DISTRESS CRIES WERE PRESENTED FOUR TIMES PER DAY FOR SIX DAYS DURING THE DAILY DRINKING SESSION. DISTRESS CRIES SUPPRESSED THE ONGOING DRINKING BEHAVIOR. THE MAJOR DECREMENT IN SUPPRESSION OCCURRED DURING THE FIRST FOUR STIMULUS PRESENTATIONS (THE FIRST DAY) WITH THE AMOUNT OF SUPPRESSION DECLINING SLIGHTLY OVER THE NEXT FIVE DAYS. RECOVERY OF THE HABITUATED RESPONSES WAS NOT OBSERVED EITHER BETWEEN DAYS OR AFTER EITHER THREE OR SEVEN DAYS OF NON-PRESENTATION OF STIMULI. ADVANTAGES AND CAUTIONS RELATING TO THE USE OF THIS TECHNIQUE ARE DISCUSSED.

INDEX TERMS -- HABITUATION, RATS, DRINKING, AUDITORY STIMULI, EMOTION, SUPPRESSION

07690029 STEPHENS GJ, MCGAUGH JL (DEPARTMENT OF PSYCHOBIOLOGY, UNIVERSITY OF CALIFORNIA, IRVINE, CALIFORNIA, 92664)
RETROGRADE AMNESIA IN MICE--ALTERATION IN TEMPORAL GRADIENTS WITH PHASE-SHIFTING OF THE TEMPERATURE RHYTHM.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

PHASE SHIFTING BY LIGHT OF THE TEMPERATURE-ACTIVITY RHYTHM OF MICE, RELATIVE TO EXTERNAL CLOCK HOUR, SIGNIFICANTLY ALTERED TEMPORAL PATTERNS OF ECS RETROGRADE AMNESIA EVIDENT IN PRIOR STUDIES WHERE EXPERIMENT TIMES COINCIDED WITH TROUGH AND CREST RESPECTIVELY OF THE TEMPERATURE RHYTHM.

INDEX TERMS -- PHASE SHIFTING, LIGHT, TEMPERATURE-ACTIVITY RHYTHM, MICE, TEMPORAL PATTERNS, ECS, RETROGRADE AMNESIA, ELECTROCONVULSIVE SHOCK

07690030 OLTON DS, ISAACSON RL (DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF MICHIGAN)
FEAR, HIPPOCAMPAL LESIONS, AND AVOIDANCE BEHAVIOR.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

IN ORDER TO DETERMINE THE SPECIFIC BEHAVIORAL DEFICIT RESPONSIBLE FOR THE IMPAIRMENT OF HIPPOCAMPECTOMIZED RATS IN ONE-WAY ACTIVE AVOIDANCE BEHAVIOR, FEAR CONDITIONING TRIALS WERE PRESENTED PRIOR TO AVOIDANCE TRAINING. AFTER THIS CONDITIONING, HIPPOCAMPECTOMIZED RATS WERE NO LONGER IMPAIRED IN THE AVOIDANCE TASK. THESE RESULTS SUGGEST THAT AFTER REMOVAL OF THE HIPPOCAMPUS AN ANIMAL IS IMPAIRED IN THE ASSOCIATION OF A NEUTRAL STIMULUS WITH THE RESPONSES ELICITED BY NOXIOUS STIMULATION.

INDEX TERMS -- HIPPOCAMPUS, AVOIDANCE BEHAVIOR, FEAR-CONDITIONING, RATS, CONDITIONING

08690031 SMYTHIES JR (DEPARTMENT OF PSYCHIATRY, UNIVERSITY OF EDINBURGH)
A POSSIBLE ROLE FOR RIBONUCLEIC ACID IN NEURONAL MEMBRANE.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

IT HAS BEEN DEMONSTRATED THAT SEROTONIN AND LSD BIND TO NUCLEIC ACIDS AND RNA HAS BEEN REPORTED TO BE PRESENT IN MEMBRANE. IT IS THEREFORE SUGGESTED THAT THE 5HT RECEPTOR SITE IN THE BRAIN MAY BE A SEGMENT OF HELICAL RNA, SPECIFICALLY THE INTERCALATION SITE WITH ATTACHMENT BY PI CLOUD INTERACTION, AND HYDROGEN AND IONIC BONDING. THIS ENABLES US TO SPECIFY EXACTLY THE ATOMS TO WHICH 5HT ATTACHES AND THIS IN TURN ENABLES US TO ACCOUNT IN DETAIL FOR MUCH OF THE CURRENTLY KNOWN STRUCTURE-ACTIVITY RELATIONSHIP DATA IN THE FIELD OF HALLUCINOGENS (CENTRAL 5HT ANTAGONISTS). THE FUNCTION OF RNA IN NEURONAL MEMBRANE MAY BE CONCERNED WITH CONFIGURATIONAL CHANGES INVOLVED WITH OPENING AND CLOSING IONIC TRANSPORT CHANNELS OR WITH CHARGE TRANSFER MECHANISMS IMPORTANT IN THE ELECTRICAL ACTIVITY OF THE MEMBRANE. TWO SPECIFIC HYPOTHESES ARE PRESENTED AS TO THE NATURE OF THE CHANNEL ITSELF WHICH IS POSTULATED TO CONSIST OF A CORE OF HELICAL RNA AND A SHEATH OF POLYAMINE. THE FUNCTION OF HOW THIS MIGHT OPERATE IN IONIC CHANNELS AS WELL AS IN AMINE TRANSPORT MECHANISMS IS OUTLINED. SUPPORTIVE EVIDENCE FOR THESE HYPOTHESES IS OBTAINED FROM A CONSIDERATION OF THE CLOSE AND COMPLEX STERIC AND HYDROGEN BONDING FIT THAT RESERPINE HAS TO HELICAL RNA. THE HYPOTHESIS IS THEN EXTENDED TO A GENERAL HYPOTHESIS THAT OTHER TRANSMITTER RECEPTOR SITES IN NEURONES CONSIST OF HELICAL RNA WITH SPECIFICITY IMPARTED BY DIFFERENT BASE PAIRS INVOLVED OR BY MASKING EFFECTS OF ASSOCIATED PROTEIN.

INDEX TERMS -- RIBONUCLEIC ACID, NEURONAL MEMBRANE, SEROTONIN, LYSERGIC ACID DIETHYLAMIDE, RNA, BRAIN, PROTEIN

08690032 FREDERICKSON CJ, WHITEHEAD PK, WHITEHEAD WE, RECHTSCHAFFEN A (UNIVERSITY OF CHICAGO, DEPARTMENTS OF PSYCHOLOGY AND PSYCHIATRY)
THE EFFECT OF ETHER ANESTHESIA ON RECOVERY FROM REM DEPRIVATION.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

AN EXPERIMENT BY DOUTHITT HAS SHOWN THAT THE 'REBOUND' RESPONSE TO 24 HRS OF REM DEPRIVATION IN THE RAT IS SUPPRESSED DURING A 2 HR RECOVERY PERIOD WHEN 2 HRS OF ETHER ANESTHESIA ARE ADMINISTERED BETWEEN DEPRIVATION AND RECOVERY PERIODS. THE APPARENT ABOLITION OF REM REBOUND BY INTERPOSED ANESTHETIZATION HAS BEEN OFFERED AS EVIDENCE OF A 'FUNCTIONAL EQUIVALENCE' BETWEEN REM AND ETHER NARCOSIS. THE PRESENT STUDY REPEATS THE EARLIER WORK BUT EXTENDS THE DURATIONS OF THE RECORDED RECOVERY PERIOD FROM 2 HRS TO 24 HRS. DESPITE A TEMPORARY (1-2 HRS) SUPPRESSION OF REM SLEEP FOLLOWING ANESTHESIA, ANIMALS ETHERIZED JUST BEFORE STARTING RECOVERY FROM REM DEPRIVATION EXHIBITED TYPICAL 'REBOUND' PROPORTIONS OF REM BY THE FIFTH HOUR OF RECOVERY. DURING 24 HRS OF RECOVERY, PREVIOUSLY ETHERIZED RATS SHOWED NO LESS TOTAL REM SLEEP THAN CONTROL ANIMALS WHICH WERE DEPRIVED OF REM SLEEP BUT NOT ETHERIZED.

INDEX TERMS -- ETHER, ANESTHESIA, RAPID EYE MOVEMENT SLEEP, RAT, NARCOSIS

08690033 DALTON AJ (PSYCHOLOGY DEPARTMENT, MCMASTER UNIVERSITY, TORONTO 5, ONTARIO)
DISCRIMINATIVE CONDITIONING OF HIPPOCAMPAL ELECTRICAL ACTIVITY IN CURARIZED DOGS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

DOGS WERE TRAINED TO PRODUCE HIPPOCAMPAL THETA ACTIVITY IN THE PRESENCE OF ONE OF TWO CONDITIONED STIMULI IN A DISCRIMINATIVE AVOIDANCE CONDITIONING SITUATION WHILE PARALYZED BY CURARE. THE RESULTS SUGGESTED THAT OPERANT CONDITIONING PROCEDURES CAN CONTROL A CENTRAL NEURAL EVENT, AND THAT FEEDBACK FROM THE SKELETAL SYSTEM IS NOT NECESSARY FOR SUCH CONDITIONING TO OCCUR.

INDEX TERMS -- CONDITIONING, HIPPOCAMPAL, CURARIZED, DOGS, AVOIDANCE CONDITIONING, SKELETAL SYSTEM

08690034 WARBURTON DM, GROVES PM (DEPARTMENT OF PSYCHOBIOLOGY, UNIVERSITY OF CALIFORNIA, IRVINE)
THE EFFECTS OF SCOPOLAMINE ON HABITUATION OF ACOUSTIC STARTLE IN RATS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

RATS GIVEN REPEATED PRESENTATIONS OF AN AUDITORY STIMULUS SHOWED AN ENHANCED STARTLE RESPONSE AFTER INJECTIONS OF SCOPOLAMINE. THE AMOUNT OF HABITUATION SHOWN BY THESE ANIMALS WAS NOT DIFFERENT FROM THAT SHOWN BY SALINE INJECTED ANIMALS. HOWEVER, WHEN RETESTED THE FOLLOWING DAY WITHOUT SCOPOLAMINE, PREVIOUSLY INJECTED ANIMALS SHOWED LESS TRANSFER OF EXPERIENCE THAN THE CONTROL ANIMALS.

INDEX TERMS -- SCOPOLAMINE, ACOUSTIC STARTLE, RATS, HABITUATION, TRANSFER OF EXPERIENCE

08690035 BAILEY MY, GARMAN MW, CHERKIN A (PSYCHOBIOLOGY RESEARCH LABORATORY, VETERANS ADMINISTRATION HOSPITAL, SEPULVEDA, CALIFORNIA, AND DIVISION OF ANESTHESIA, UNIVERSITY OF CALIFORNIA SCHOOL OF MEDICINE, LOS ANGELES, CALIFORNIA)
INCUBATION OF LEARNING--ABSENCE IN ONE-TRIAL AVOIDANCE CONDITIONING IN THE CHICK.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

NEONATE CHICKS (N=200) WERE TESTED IN A ONE-TRIAL AVOIDANCE PARADIGM, TO DETERMINE WHETHER A TIME-DEPENDENT INCUBATION OF LEARNING OCCURRED. WE OBSERVED NO SIGNIFICANT DIFFERENCES IN THE CONDITIONED AVOIDANCE RESPONSE AMONG SEPARATE GROUPS TESTED AT INTERVALS OF 1, 8, 64, 512, OR 86,400 SECONDS AFTER TRAINING. THUS, NO INCUBATION EFFECT WAS DETECTED.

INDEX TERMS -- INCUBATION, LEARNING, AVOIDANCE CONDITIONING, CHICK, AVOIDANCE RESPONSE

08690036 GLICK SD, GOLDFARB TL, JARVIK ME (DEPARTMENT OF PHARMACOLOGY, ALBERT EINSTEIN COLLEGE OF MEDICINE, YESHIVA UNIVERSITY, BRONX, N.Y.)
RECOVERY OF DELAYED MATCHING PERFORMANCE FOLLOWING LATERAL FRONTAL LESIONS IN MONKEYS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

FOUR RHESUS MONKEYS WERE OVERTRAINED ON AN AUTOMATED DELAYED MATCHING TASK FOR WATER REWARD. BILATERAL SURGICAL ABLATION OF DORSOLATERAL FRONTAL CORTEX WAS THEN PERFORMED ON TWO OF THE MONKEYS. THE FRONTAL MONKEYS SHOWED AN INITIAL DEFICIT IN TEST PERFORMANCE WHICH WAS DEPENDENT UPON THE PRESENCE OF A MINIMAL DELAY. THE PERFORMANCE OF THE FRONTAL MONKEYS GRADUALLY RECOVERED TO THEIR PRE-OPERATIVE LEVEL DURING FIVE WEEKS OF POST-OPERATIVE TESTING.

INDEX TERMS -- LESIONS, MONKEYS, WATER REWARD, ABLATION, FRONTAL, CORTEX, DELAYED MATCHING

08690037 FINDLEY JD, ROBINSON WW (THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, DEPARTMENT OF PSYCHIATRY AND BEHAVIORAL SCIENCES, DIVISION OF BEHAVIORAL BIOLOGY, BALTIMORE, MARYLAND)
AN AVERSIVELY MAINTAINED COUNTING PROCEDURE FOR ASSESSMENT OF DRUGS AND DRUG-BEHAVIOR INTERACTIONS IN PRIMATES--EFFECTS OF CHLORPROMAZINE, SCOPOLAMINE, AND D-AMPHETAMINE.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

WITHIN THE CONTEXT OF DRUG-BEHAVIOR INTERACTION STUDIES, DETAILS OF A SHOCK-MAINTAINED COUNTING PROCEDURE FOR USE WITH PRIMATES ARE PRESENTED. THE PROCEDURE REQUIRES THE SUBJECT TO DISCRIMINATE THE ORDINAL POSITION OF SUCCESSIVE TONE PRESENTATIONS. AN EXACT COUNT IS REQUIRED AND SOLUTION OF THE PROBLEM BY TIMING CUES IS ELIMINATED. SINCE THE PROCEDURE EMPHASIZES MEMORY OF RECENT EVENTS AND ALLOWS A VARIETY OF POSSIBLE TYPE ERRORS, IT APPEARS PROMISING FOR STUDY OF CNS COMPOUNDS AND ANALYSIS OF DRUG-BEHAVIOR INTERACTIONS. SOME FEATURES OF THE PROCEDURE ARE ITS FLEXIBILITY, RELATIVE EASE OF ESTABLISHMENT, STABILITY OVER TIME, AND GOOD SENSITIVITY IN SPITE OF OVER-TRAINING. DOSE RESPONSE RELATIONSHIPS WITH THREE COMPOUNDS SHOW CHLORPROMAZINE AND SCOPOLAMINE TO BOTH REDUCE OVERALL ACCURACY, BUT AS A RESULT OF DIFFERENT KINDS OF ERRORS. DOSES OF D-AMPHETAMINE OVER A CONSIDERABLE RANGE WERE WITHOUT EFFECT.

INDEX TERMS -- DRUG BEHAVIOR INTERACTIONS, PRIMATES, CHLORPROMAZINE, SCOPOLAMINE, DEXTRO AMPHETAMINE, COUNTING, DISCRIMINATE

08690038 COLAVITA FB (DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF PITTSBURGH, PITTSBURGH, PENNSYLVANIA)
ELECTRICAL BRAIN STIMULATION USED AS A CS.
COMMUNICATIONS IN BEHAVIORAL BIOLOGY, 1969

TWO GROUPS OF ADULT CATS WERE TRAINED IN A DOUBLE GRILL BOX SHOCK AVOIDANCE SITUATION. ONE GROUP WAS TRAINED WITH A SERIES OF ACOUSTIC CLICKS AS THE CS, WHILE THE OTHER GROUP WAS TRAINED USING DIRECT ELECTRICAL STIMULATION OF THE INFERIOR COLLICULUS AS THE CS. FOOT SHOCK SERVED AS THE US FOR BOTH GROUPS.

THOSE ANIMALS RECEIVING BRAIN STIMULATION AS A CS WERE FIRST PREPARED IN AN ASEPTIC OPERATION WITH CHRONIC BIPOLAR ELECTRODES IN THE LEFT INFERIOR COLLICULUS. A FLEXIBLE OVERHEAD CABLE ARRANGEMENT PERMITTED ELECTRICAL CURRENT TO BE DELIVERED TO THE ANIMALS AS THEY WERE TRAINED IN THE DOUBLE GRILL BOX.

THE DATA INDICATED THAT THE ANIMALS TRAINED WITH THE ELECTRICAL BRAIN STIMULATION CS ACQUIRED THE CONDITIONED RESPONSE SIGNIFICANTLY FASTER THAN THE GROUP TRAINED WITH THE CLICK CS. IT WAS SUGGESTED THAT THE NOVELTY OF THE BRAIN STIMULATION CAUSED IT TO BE ATTENDED TO EARLY IN TRAINING TO A GREATER DEGREE THAN THE CLICKS WERE ATTENDED TO, THEREBY FACILITATING ACQUISITION FOR THE ANIMALS TRAINED WITH ELECTRICAL BRAIN STIMULATION AS A CS.

INDEX TERMS -- BRAIN STIMULATION, AVOIDANCE SITUATION, CATS, ACOUSTIC CLICKS, INFERIOR COLLICULUS, FOOT SHOCK, CONDITIONED RESPONSE